Adaptive Capacity

Advancing the Understanding and its Application to Inform Sustainable Resource Management in a Changing Climate

National Adaptation Forum, April 2, 2013

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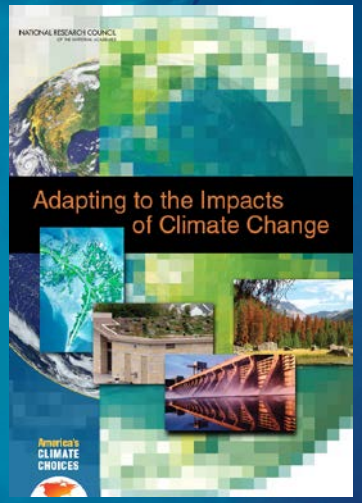
The Impetus for Today's Session

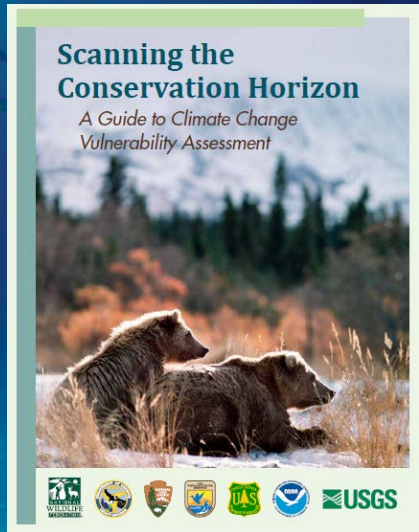
- **Adaptation planning begins with a vulnerability assessment**

NRC 2010, Adapting to the Impacts of Climate Change. National Academy Press.

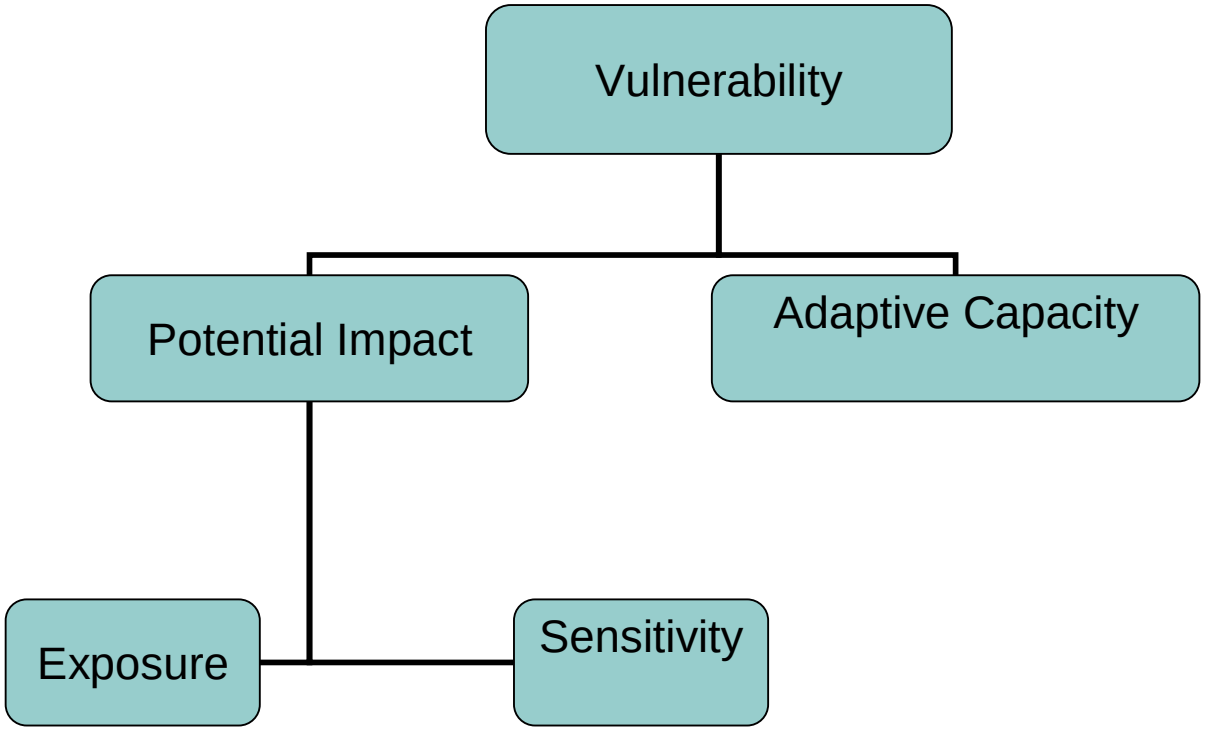


- **How to assess vulnerability**

Glick P, BA Stein, and NA Edelson, editors. 2011. Scanning the Conservation Horizon: A Guide to Climate Change Vulnerability Assessment. National Wildlife Federation



Vulnerability and Its Components



IPCC Definition of Adaptive Capacity

"…the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences."

Can be thought of as "coping range" or "coping capacity"

How to Assess the Adaptive Capacity of Natural Systems?

At the Species Level:

- Plasticity;
- Dispersal ability;
- Evolutionary potential;

At the Habitat Level:

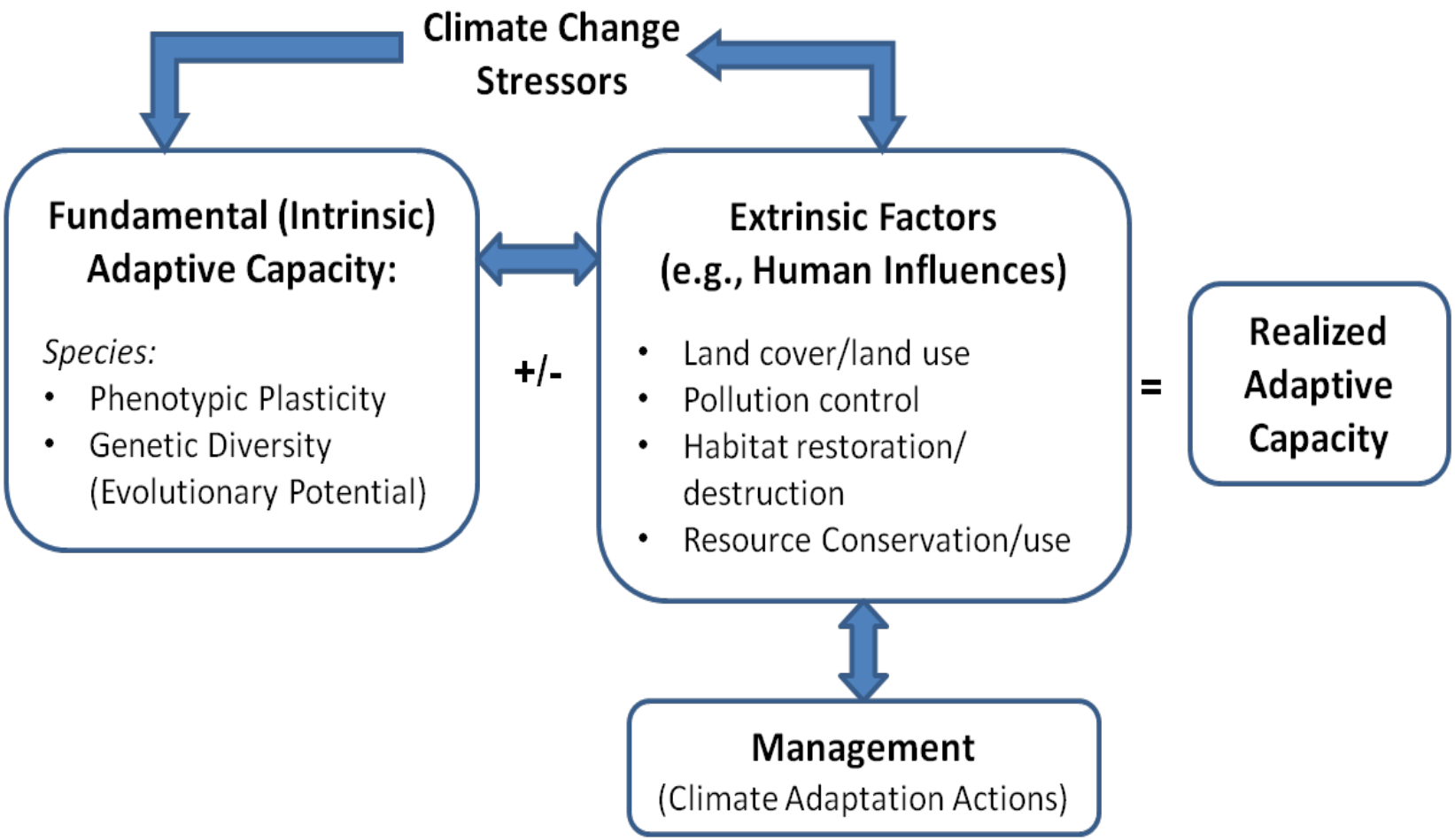
- Permeability of the Landscape;

At the Ecosystem Level:

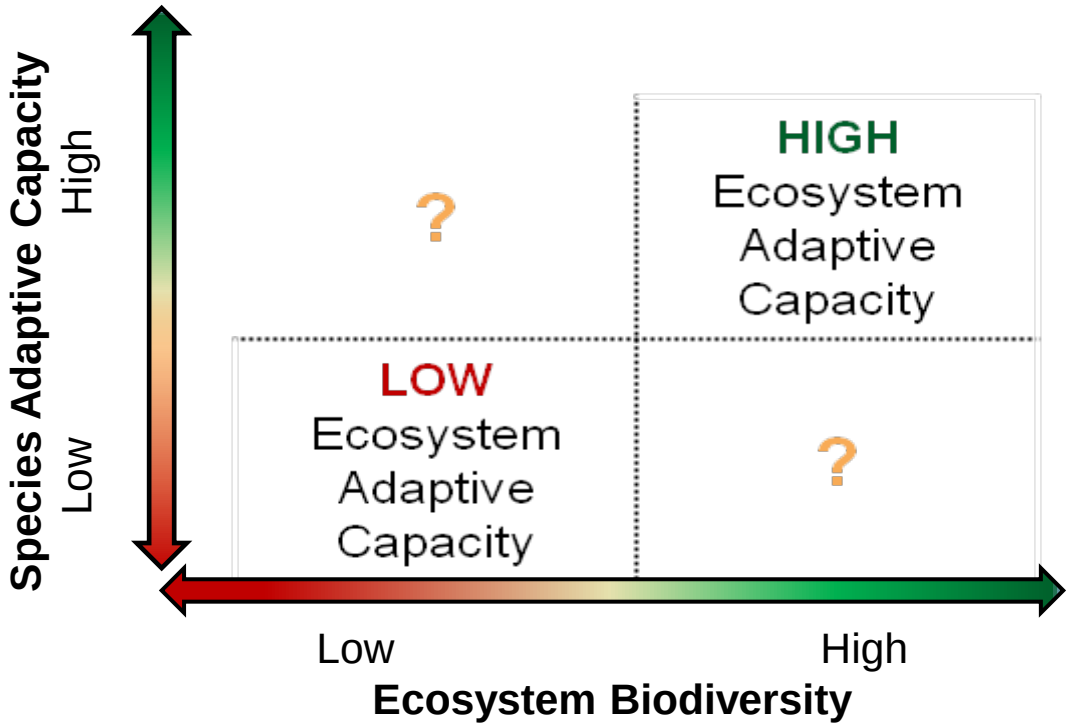
- Redundancy and Response Diversity (within functional groups)

(Glick et al. 2011)

That's good in theory – but how do we apply this knowledge to management?



At the Ecosystem Level?



Some Key Questions:

- What factors affect the adaptive capacity of species, sea-/landscapes, and ecosystems?
- How do we develop approaches to a) measure (e.g. in the field); and/or b) assess the adaptive capacity of species, landscapes, ecosystems?
- How do we construct a theory of change, linking pressures on species landscapes and ecosystems, to develop management practices?

Tomorrow's Working Group

Wednesday, April 3

From: 1:30 – 3:00 P.M.

Location: Denver Ballroom 1

Title: Advancing Understanding and Application of Adaptive Capacity to Inform Sustainable Resource Management in a Changing Climate

Purpose: Discuss the framework and research needs

Today's Symposium

Amanda Robertson, Science Coordinator, Northwest Boreal Landscape Conservation Cooperative **(not allowed to travel due to sequester)**

"Adaptive capacity of a boreal forest tree, *Populus balsamifera* (L.)"

Gretchen Hofmann, Professor, University of California, Santa Barbara

"Adaptation as a response to ocean acidification - is it possible and how do we look for it?"

Erik Beever, Ph.D., Research Ecologist, USGS Northern Rocky Mtn. Science Center

"Understanding which, where, and how wildlife species can adapt to a variable and rapidly changing climate"

Adrienne Nicotra, Associate Professor, Future Fellow, The Australian National University

"Plasticity: it's relevance to Adaptive Capacity from an ecological and evolutionary perspective in a management context"